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ABSTRACT

Divided into two major parts, this report summarizes the findings, recommendations, and conclusions of the National Academy of Sciences and National Research Council's analysis of the current function and potential capacity of congressionally appointed federal agencies relative to providing emergency medical care services. More specifically, the study was concerned with: (1) establishing a national focal point for Emergency Medical Services (EMS), (2) providing technical consultation and guidance to states, communities, citizens, and organization, (3) establishing an information center, (4) coordinating inter-department and inter-agency EMS activities, (5) establishing an EMS data system, and (6) developing five total emergency medical systems as demonstration projects. The demonstration sites selected were: (1) Arkansas, (2) a 3-county area of Southern California, (3) a 7-county area of Northeastern Florida, (4) State of Illinois, and (5) a 7-county area of Southern Ohio. Contents of the report include: (1) introduction and recommendations on initiative by the Executive Office of the President and the Department of Health, Education, and Welfare, and (2) implementation of emergency service programs. (SN)

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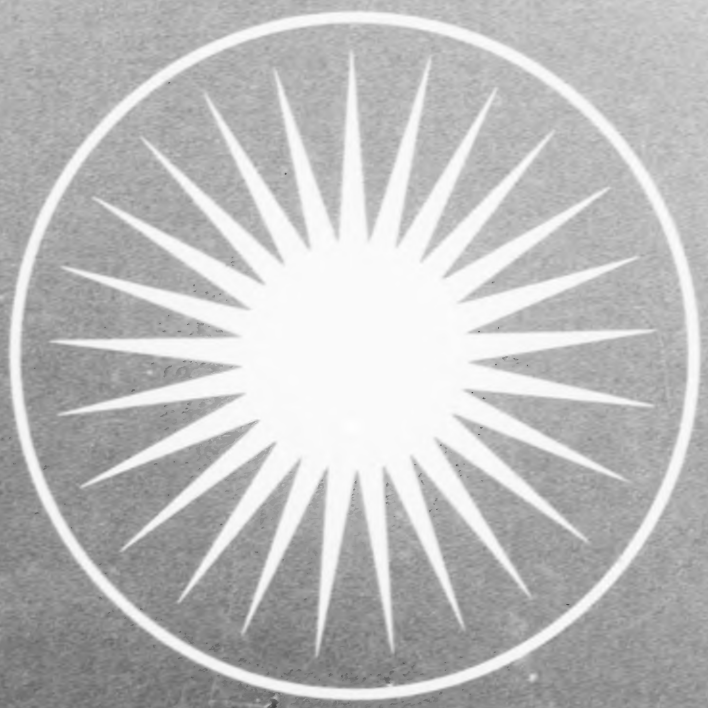
ROLES AND RESOURCES OF FEDERAL AGENCIES IN SUPPORT OF COMPREHENSIVE EMERGENCY MEDICAL SERVICES



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ROLES AND RESOURCES OF FEDERAL AGENCIES IN SUPPORT OF COMPREHENSIVE EMERGENCY MEDICAL SERVICES

Prepared by the
Committee on Emergency Medical Services
Division of Medical Sciences
National Academy of Sciences/National Research Council
Washington, D.C.
March, 1972

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NOTICE

The study reported herein was undertaken under the aegis of the National Research Council with the express approval of the Governing Board of the NRC. Such approval indicated that the Board considered that the problem is of national significance, that elucidation or solution of the problem required scientific or technical competence, and that the resources of the NRC were particularly suitable to the conduct of the project. The institutional responsibilities of the NRC were then discharged in the following manner:

The members of the study committee were selected for their individual scholarly competence and judgment with due consideration for the balance and breadth of disciplines. Responsibility for all aspects of this report rests with the study committee, to whom we express our sincere appreciation.

Although the reports of our study committees are not submitted for approval to the Academy membership nor to the Council, each report is reviewed by a second group of appropriately qualified persons according to procedures established and monitored by the Academy's Report Review Committee. Such reviews are intended to determine, inter alia, whether the major questions and relevant points of view have been addressed and whether the reported findings, conclusions, and recommendations arose from the available data and information. Distribution of the report is approved, by the President, only after satisfactory completion of this review process.

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FOREWORD

In March, 1972, the month this report was completed, the Special Projects Office, Emergency Medical Services was established under the Office of the Administrator, Health Services and Mental Health Administration, Department of Health, Education, and Welfare. The establishment of the Office was in direct response to the President's concern, stated in his State of the Union Message, that "We must develop new ways of organizing emergency medical services and of providing care to accident victims."

The broad objective of the EMS Special Projects Office is to provide all citizens with access to quality emergency medical care in a system related to the community's health care delivery system. The specific objectives of the Office are: to establish a national focal point for emergency medical services; to provide technical consultation and guidance to States, communities, citizens, and organizations; to establish an information center; to coordinate inter-department and inter-agency EMS activities; to establish an EMS data system; and to develop five total emergency medical services systems as demonstration projects.

In June, 1972, the Administrator of HSMHA announced the selection of the demonstration sites: the State of Arkansas, a three-county area of Southern California (San Diego), a seven-county area of Northeastern Florida (Jacksonville), the State of Illinois, and a seven-county area of Southeastern Ohio (Athens). Contracts totalling 16 million dollars have been signed with the agencies in these areas to develop EMS systems. Projects will include the upgrading of emergency departments, the improving of transportation and communication systems, the training of emergency medical technicians, nurses and physicians, and the conducting of public and professional information programs.

The inter-department Committee on Emergency Medical Services, has been established and is being staffed. The data system and the information center are also in the formative process. For additional information, write to: Special Projects Office, EMS, Parklawn Bldg., Rm. 17-64, 5600 Fishers Lane, Rockville, Maryland 20852.

PREFACE

This study was supported by the Division of Emergency Health Services and the National Center for Health Services Research and Development of the Public Health Service,* in response to a proposal by the Committee on Emergency Medical Services of the Division of Medical Sciences, NAS-NRC, that studies be carried out as follows: An analysis of current legislative assignment of responsibility to the numerous federal agencies in support of physical facilities, equipment, and training and employment of personnel, as may be applied to emergency care areas, and recommendations on ways in which coordination of these resources might increase effectiveness of delivery of emergency care.

Federal agencies whose resources, legislative authority or program responsibility are considered to relate, either directly or indirectly, to some aspects of emergency medical services were identified by reference to the U. S. Government Organizational Manual, the Catalog of Federal Assistance Programs of the Office of Economic Opportunity; the Listing of Operating Federal Agency Programs, compiled in the Roth Study; also through conferences with representatives of 13 federal agencies that could be concerned with ambulance services and 9 that could be concerned with emergency medical communication systems, as well as numerous meetings with representatives of other agencies.

In the period before September 1971, the only federal agencies with specific legislative support for emergency medical services were the Division of Emergency Health Services of the Public Health Service and the Division of Emergency Medical Programs of the National Highway Traffic Safety Administration. The Committee on Emergency Medical Services of the NAS-NRC found little evidence of concern for implementation of recommendations for upgrading of emergency medical services by any agency within the Department of Health, Education, and Welfare above the level of the Division of Emergency Health Services, although the Division of Medical Sciences of the NAS-NRC in its report, "Accidental Death and Disability: The Neglected Disease of Modern Society," of 1966, and the American College of Surgeons and the American Academy of Orthopaedic Surgeons, in the Airlie Conference report of 1969, recommended initiative in this field by the Executive Office of the President, and the report of the Department of Health, Education, and Welfare Advisory Committee on Traffic Safety of 1968, under the chairmanship of Dr. Daniel P. Moynihan, recommended that the Department of HEW should assume primary responsibility to establish emergency medical services and consolidate the roles of agencies within the Department for this purpose.

In the fall of 1971, the Office of Science and Technology and the Office of Emergency Preparedness of the Executive Office of the President requested information from the NAS-NRC Division of Medical Sciences on programs and priorities for upgrading emergency medical services. These

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* Contracts HSM 110-69-69 and HSM 110-70-386

offices, the Assistant Secretary for Health and Scientific Affairs, and the Office of the Director of the Health Services and Mental Health Administration of the Department of HEW, were provided informally with drafts of that portion of this report which deals with initiative at the executive level and coordination of emergency medical programs by the Department of HEW.

In his State of the Union Message to Congress on 20 January 1972, the President declared concern over emergency health services and the need for a new program of technological research and development that could save thousands of lives annually. This statement serves as an incentive for federal agencies to identify their roles in support of emergency health services programs and to coordinate their efforts to upgrade emergency medical services throughout the nation. Already there have been allocated limited funds to the Health Services and Mental Health Administration for this purpose, and a number of bills have been introduced in Congress in support of components of an emergency medical services program.

It is the hope of the NAS-NRC Committee on Emergency Medical Services that this report will add momentum to the further development of administrative policies and interdepartmental coordination by the Executive Office of the President, the development of program priorities and consolidation and direction of programs within the Department of Health, Education, and Welfare, the allocation of appropriate resources by the Office of Management and Budget, and the appropriation of adequate funds by the Congress toward the development and implementation of optimal emergency medical services for every citizen of the country.

Committee on Emergency Medical Services
Division of Medical Sciences
National Academy of Sciences-
National Research Council

March, 1972

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SECTION I. INTRODUCTION AND RECOMMENDATIONS ON INITIATIVE BY THE EXECUTIVE OFFICE OF THE PRESIDENT AND THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

INTRODUCTION

Magnitude of the Problem of Delivery of Emergency Medical Services

Accidental injury and acute illness generate a staggering demand on ambulance and rescue services, allied health personnel, physicians, and hospitals for the delivery of emergency medical services. Accidental injury is the leading cause of death among all persons aged 1 to 38. Each year more than 52 million U. S. citizens are injured, of whom more than 110,000 die, 11 million require bed care for a day or more, and 400,000 suffer lasting disability at a cost of nearly $3 billion in medical fees and hospital expenses and over $7 billion in lost wages.[1] Those requiring hospitalization occupy an average of 65,000 beds for 22 million bed-days under the care of 88,000 hospital personnel.[2] This hospital load is equivalent to 130 500-bed hospitals. Of the more than 700,000 deaths from heart disease each year, the majority are due to acute myocardial infarction and more than half of these deaths occur before reaching a hospital. Approximately 40 million persons seek care each year in hospital emergency departments as a result of accidents, heart disease, stroke, poisoning, diabetic coma, convulsive disorders, and many other illnesses.

Deficiencies in Delivery of Emergency Care

Emergency medical service is one of the weakest links in the delivery of health care in the nation. Thousands of lives are lost through lack of systematic application of established principles of emergency care. Few at the site of accidental injury or sudden illness are trained in the fundamentals of restoration of breathing, control of hemorrhage, or splinting of fractures. The majority of ambulances in the United States are of the hearse, limousine, or station wagon type which are inadequate in space and equipment and are manned by individuals with inadequate training to provide essential life support. Pilot studies with better ambulance services indicate that thousands of lives can be saved and disability reduced.

Many ambulances lack radio communication even with their own dispatchers. Communication rarely exists between ambulances and hospitals, so that most patients arrive at emergency departments without prior notification. Most emergency departments of the nation are not only lacking in facilities and personnel, but are overtaxed by millions of non-emergency cases for whom ancillary outpatient facilities should be provided, especially during evening hours and on weekends. In comparison with facilities for definitive care of illness, few centers of excellence for the care of the critically ill or injured exist.

Mobilization of Professional Efforts to Correct Deficiencies of Emergency Care

Nationwide attention was focussed on the magnitude of the problem of death and disability from accidental injury and life-threatening illness by a publication in 1966 of the National Academy of Sciences-National

Research Council entitled "Accidental Death and Disability: The Neglected Disease of Modern Society."[2] At that time, efforts toward upgrading of ambulance services and emergency department care were limited to a very small number of dedicated individuals and organizations. The principal effort of a national scope was that of the Committee on Trauma of the American College of Surgeons and the collaboration with this committee of the American Association for the Surgery of Trauma and the National Safety Council through a Joint Action Program.

Since 1966, through forums of the NAS-NRC, medical leaders, hospital administrators, pioneers in ambulance services, automotive design experts, communication specialists and others have contributed to publication of guidelines and recommendations on the training of ambulance personnel,[3,4] medical requirements for ambulance design and equipment,[5] ambulance design criteria,[6] cardiopulmonary resuscitation,[7,8] and categorization of hospital emergency departments.[2] These recommendations, together with principles evolved in current studies on emergency medical communications, response to cardiac emergencies, and trauma registries, have been widely accepted as an adequate and compelling basis for direct application. What needs to be done and how to implement a nationwide comprehensive emergency medical services system have been delineated.

In the past five years there has been an unprecedented surge of activity among professional and lay organizations toward upgrading of emergency medical care. Organizations established before 1966 that have intensified their efforts include the Committee on Trauma of the American College of Surgeons, the Committee on Cardiopulmonary Resuscitation of the American Heart Association, the Committee on Acute Medicine of the American Society of Anesthesiologists, and the Committee on Injuries of the American Academy of Orthopaedic Surgeons. Of special significance is the establishment, since 1966, of many new organizations, including the Commission on Emergency Medical Services of the American Medical Association, the Committee on Community Emergency Health Services of the American Hospital Association, the American Trauma Society, the University Association for Emergency Medical Services, the Emergency Department Nurses Association, the Society of Critical Care Medicine, the American College of Emergency Physicians, and the national Registry of Emergency Medical Technicians. The Joint Commission on Accreditation of Hospitals has recently incorporated new emergency department standards for accreditation purposes.[9] Scores of communities have established community councils on emergency medical services and a few community governments have accepted responsibility for emergency medical services on a scale comparable to police and fire services.

Limitation of Federal Recognition of the Problem

Federal agencies have not kept pace with the efforts of professional and allied health organizations to upgrade emergency medical services. As in 1966, the Division of Emergency Health Services, formerly the Division of Health Mobilization, is the only office within the Department of Health, Education, and Welfare that is identified as responsible for the upgrading and improvement of delivery and quality of emergency health

services. The first evidence of congressional concern over emergency medical services, other than in disaster or a national emergency, was the mandate of the Highway Safety Act of 1966 to set uniform standards for states, including standards for "emergency services." Despite the recommendations in the report, in 1968, of the DHEW Advisory Committee on Traffic Safety under the chairmanship of Dr. Daniel P. Moynihan, that the DHEW should have primary responsibility to establish emergency medical transportation and care as an ongoing public service available to all persons everywhere and maintained at advanced levels of quality,[10] and despite the recommendations in June 1970 in the report of the Surgeon General's Steering Committee on Emergency Health Care and Injury Control that DHEW consolidate splintered efforts to support emergency medical services,[11] there is meager evidence that responsibility to carry out these recommendations has been incorporated in goals or priorities at any level within DHEW higher than the Division of Emergency Health Services of the PHS. While there has been limited support of trauma research centers by the National Institute of General Medical Sciences, and of head injury research centers by the National Institute of Neurological Diseases and Stroke and of emergency care of the victims of myocardial infarction by the Regional Medical Programs Service, the resources of other agencies within the DHEW have been minimal in support of training, emergency medical communications, and upgrading of hospital emergency departments. Meantime, the Department of Transportation, through enabling legislation and promulgation of standards and development of a program in emergency medical services, has exerted leadership in production of training programs for ambulance emergency medical technicians, delineation of ambulance design criteria, and planning of statewide emergency medical systems. It has provided matching funds for upgrading of ambulance services through purchase of ambulances and equipment, installation of communication systems, and initiation of training programs.

COORDINATION OF FEDERAL RESOURCES IN SUPPORT OF COMPREHENSIVE EMERGENCY MEDICAL SERVICES

Federal agencies whose resources are related to elements of an emergency medical services system are identified later in this report. In its analysis of the ways in which the resources of these agencies might be utilized, the NAS-NRC Committee on Emergency Medical Services finds that while most of the agencies have resources that could and should be used in development of a system of emergency medical services, the most efficient role that each agency may play in an overall program is reduced severely because there are no federal focal points of responsibility for delineation of the essential requirements for communication, transportation, or command and control, which are common to all emergencies, nor is there a federal focal point for overall planning, or for coordination of emergency medical services. For these reasons the Committee recommends the following:

Leadership at the Executive Level

Executive leadership has proven to be effective in identifying the magnitude of health problems of national concern and in mobilization of efforts to alleviate these problems through declaration of administrative policies in messages before the Congress, program planning, establishment of coordinating and advisory bodies, conduct of conferences at the Executive level, and assignment of responsibility for implementation of programs to departments of the Executive Branch. Such support of nationwide attacks on problems of heart disease, cancer, stroke, traffic safety, mental retardation, care of the aged and deprived, drug abuse, alcoholism, consumer protection, environmental control, smoking and rehabilitation have stimulated public awareness and demand for action, congressional support, interdepartmental coordination at the Executive level and departmental implementation of comprehensive programs to solve these problems. Emphasis at the Executive level on the need for a nationwide attack on the problem of delivery of emergency medical services would result in salvage of many thousands of lives and in a decrease in disability and suffering. Recommendations that such action be taken by the Office of the President were made in the report of 1966,"Accidental Death and Disability: The Neglected Disease of Modern Society,"[2] the National Academy of Sciences-National Research Council, and in the proceedings of 1969 of the Airlie Conference on Emergency Medical Services,[17] sponsored by the American College of Surgeons and the American Academy of Orthopaedic Surgeons.

Recommendation

It is recommended that the Office of the President express as a policy of the Administration, concern for the magnitude of the problem of death and disability from accidents and sudden illnesses,* and recommend action to be taken by the Legislative

* Expression of such concern was made for the first time by the Office of the President in President Nixon's Message to Congress on January 20, 1972.

and Executive Branches of the government to ensure optimum emergency care for every citizen who needs it.

Designate the Department of Health, Education, and Welfare as the agency primarily responsible for delineation of administrative goals for a comprehensive emergency medical services system and for coordination of programs of all federal agencies designed to meet these goals.

Assure, in close cooperation with the Office of Management and Budget, that appropriate resources of all Executive Departments and agencies with roles and responsibilities related to emergency medical services plan their programs in this field in accordance with the programs and goals established by the Department of Health, Education, and Welfare, and in a manner that avoids gaps, imbalances, and duplications.

Interdepartmental Coordination at the Executive Level

Since delivery of emergency medical care is a component of programs of numerous federal departments and agencies under direction of the Executive Office of the President, responsibility for planning and coordination of their resources should be fixed at that level. The resources of agencies that can be applied directly to one or more components of an emergency medical services system must be identified. These include: provision of adequate outpatient and hospital facilities in the Model Cities Program by the Department of Housing and Urban Development, for Neighborhood Health Centers by the Office of Economic Opportunity, and for adequate outpatient care and initial emergency management facilities by the Health Maintenance Organization; analysis of accidental injuries due to the products of industry by the Office of Consumer Affairs of the Office of the President and the Food and Drug Administration, and of the incidence of acute illness and accidents due to environmental hazards by the Environmental Protection Agency, the Bureau of Community Environmental Management, and the Poison Control Program of the Food and Drug Administration; recruitment, training, and placement of allied health and professional personnel by the Department of Labor, the Office of Economic Opportunity, the Veterans Administration, the Department of Defense, the Office of Education, and the Bureau of Health Manpower Education; integration of communication facilities by the Office of Telecommunications Policy and the Office of Emergency Preparedness of the Executive Office of the President; allocation of radio and telemetry channels by the Federal Communications Commission; specifications for modern ambulances funded by the Department of Transportation, the General Services Administration, and the Small Business Administration; requirements for hospital emergency care facilities under the Hill-Burton Program; definition of the role of helicopters by the Department of Defense, the Department of Transportation, and the Department of Health, Education, and Welfare; and delineation of standards of delivery and quality of emergency care reimbursable by the Social Security Administration.

Many agencies are responsible for health care programs that are dependent upon a fully functioning comprehensive system of emergency care. The extent to which their resources complement the system and the particular ways in which delivery of emergency care apply to their programs must be identified and coordinated in an overall program. These agency programs include the care of persons injured in the highway, airway, railway, and maritime systems under jurisdiction of the Department of Transportation; the Appalachian Regional Commission; and the Appalachian Demonstration Program, the Community Health Service Program, the Comprehensive Health Planning Service, the Migrant Health Program, the Indian Health Service, and the Regional Medical Programs Service of the Department of Health, Education, and Welfare.

Of special significance is the need for an ongoing comprehensive emergency medical services system that functions every hour of every day in every region of the country, and can respond without delay to effectively meet the needs of the Office of Emergency Preparedness in predisaster mobilization of resources and systematic delivery of emergency care in time of natural disaster or a national emergency. On a smaller scale, such a system is essential to community and state response to the unexpected needs imposed by civil disorders.

Establishment of an interdepartmental coordinating mechanism at the level of the Executive Office of the President would provide a means by which all concerned federal agencies would be informed of the ways in which their resources would be coordinated with the overall responsibility of the DHEW in implementing emergency care programs. By bringing together representatives of participating federal agencies, spokesmen of leading professional and allied health organizations, and concerned citizens, the Executive Office would provide a National Emergency Medical Services Council.

Recommendation

> Because of the multiplicity of federal agencies whose missions include components of emergency medical care, it is recommended that an effective interdepartmental coordinating mechanism be established in the Executive Office of the President for identification of the resources of federal departments and agencies that are related to components of a comprehensive program for the delivery of emergency medical services, and for integration of these resources with the overall health care program of the Department of Health, Education, and Welfare.

Administration and Coordination of Emergency Medical Programs by the Department of Health, Education, and Welfare

Primary responsibility for the health of the nation is vested in the DHEW. Emergency medical care is an integral element of every component of the health care system. Currently the priorities of the DHEW are expressed

in a statement of 18 goals. Although 11 of these goals are related to health services, none of them incorporates provision for delivery of emergency medical services. A goal expressly designed to intensify efforts to establish a comprehensive system of emergency medical services would identify the roles of the executive branch and legislative needs, coordinate the roles of other federal departments, and consolidate the roles of agencies within the DHEW.

Recommendation

> It is recommended that the DHEW assign responsibility at a level within the Department that would develop administrative goals and priorities in support of a comprehensive emergency medical services system that would reflect policies of the Office of the President, serve as a justification for budgetary support, coordinate the roles and resources of other federal departments and agencies, and consolidate and direct programs within the DHEW.

Federal-State Relationships in Providing Support for Emergency Medical Care Programs

Implementation of comprehensive emergency medical services should be a function of agencies and organizations of regional areas, the size and number of which are determined by population densities, industrial and environmental factors which influence the incidence of injuries or acute illnesses, and the time element involved in the response of emergency ambulance and rescue services, coordination through integrated communication facilities, and delivery of the disabled to hospitals equipped and staffed to render life-saving care in accordance with the gravity of their conditions. This calls for designation of a number of small geographic areas in metropolitan centers and larger ones that encompass numbers of communities or widespread rural areas.

It is essential that a focal point be identified at state levels for planning for emergency medical services and for identification of the state, regional, and local public and private agencies that implement emergency medical services programs. Provision for emergency medical services should be incorporated in the programs of the Comprehensive Health Planning Service through formula grants (314a) for statewide planning and project grants (314b) to assist public or nonprofit private agencies in developing regional, metropolitan, or local area health plans. The utilization of federal and state funds should be in accordance with the program of the Comprehensive Health Planning Service. To assist in determination of needs and ways of implementing programs, Emergency Medical Services Councils should be established at state, regional, and community levels.[12] Application of the resources of all federal agencies that support components of emergency medical services should be coordinated by the DHEW and funnelled to state, regional, and community levels through public and nonprofit private agencies identified in the Comprehensive Health Planning Service programs.

Currently the utilization of federal and state funds in upgrading of emergency medical services is optional at state levels and is influenced by limitations of funding, political commitments, and pressures of the constituency. Earmarking of appropriated funds for upgrading of emergency medical services under provisions similar to those that resulted in rapid implementation of mental health, regional medical, drug abuse, and law-enforcement programs would assure availability of support to public and private agencies responsible for delivery of emergency medical care to all citizens.

Recommendation

It is recommended that those resources of federal agencies that are related to the delivery of emergency medical services be utilized at state and regional levels in accordance with requirements delineated by the Comprehensive Health Planning Service at state and regional levels, that application of these resources be coordinated through the DHEW, and that funds appropriated by the Legislative Branch be designated specifically for support of public and private agencies and workers responsible for implementation of components of an emergency medical services system.

SECTION II. IMPLEMENTATION OF EMERGENCY MEDICAL SERVICES PROGRAMS

Few federal agencies are informed of the extent to which their resources might be applied in support of components of a comprehensive emergency medical services system. The purpose of this section of the report is to bring together and to reaffirm recommendations of the Committee on Emergency Medical Services and of numerous other organizations on needs to implement them and to identify the agencies that are most advanced in delineation of standards, and the several other agencies whose resources are being or could be applied to elements of the system.

DELINEATION OF EMERGENCY MEDICAL SERVICES AREAS

Emergency Medical Services areas should be delineated on a nationwide scale to ensure optimal availability and efficient utilization of emergency facilities and services for every citizen. The size and number of areas should be determined by population density, geographic features, industrial and environmental factors that influence the incidence of injuries or acute illnesses, quality and location of medical and other resources, and the time element involved in the response of emergency land and air ambulance and rescue services and in the delivery of patients to hospitals equipped and staffed to render life-saving care in accordance with the gravity of their illnesses or injuries.

The time element in transport of trained personnel and equipment to the scene and of victims to hospitals is one of the most important criteria in determining the locations and numbers of ambulance units and hospitals of various capabilities within an area and in determining the extent to which helicopter and fixed-wing aircraft are required.

Full collaboration in utilization of the facilities and personnel and compatibility of the communication systems of multiple political jurisdictions within an emergency medical services area are essential to effective day-to-day emergency care within that area. Integration of multiple areas is essential to optimal response to widespread natural disasters or a national emergency.

Federal resources that should be coordinated in support of overall planning and assurance of availability of facilities and services in emergency medical services areas include all emergency medical facilities under the Model Cities Program of the Department of Housing and Urban Development; the clinics of the Neighborhood Health Centers Program of the Office of Economic Opportunity; facilities under the Health Maintenance Organization of DHEW; utilization of helicopters under the Military Assistance to Safety and Traffic (MAST) Program of the Department of Defense, the Department of Transportation, and the Department of Health, Education, and Welfare; and integration of

communication and transportation facilities in consonance with the needs of the Office of Emergency Preparedness and the Office of Telecommunications Policy of the Executive Office of the President in coping with natural disasters or a national emergency. Utilization of the resources of all other federal agencies identified under specific programs below should be in accordance with state and areawide comprehensive health planning programs.

EMERGENCY MEDICAL COMMUNICATIONS

Response to the medical needs in the case of accidents, epidemics, public disorders, and natural disasters involves not only local first-aid workers, ambulance and rescue units, hospitals, and professional and allied health personnel, but also agencies concerned with traffic control, fire fighting, law enforcement, utilities, public health, civil defense, and others. With rare exception, communication facilities of each of these emergency response agencies are restricted to their separate needs.

Allocation of federal, state, and local funds to promote improvement of separate communication systems fosters fragmented, duplicative, and incompatible communication complexes within political jurisdictions. A centralized communication system that provides compatibility of intercommunication between all emergency response agencies is necessary for the day-to-day needs of each political jurisdiction within emergency medical services areas and for command, control, and management of emergency service resources of multiple emergency medical services areas in case of natural disaster or national emergency.

Elements of a comprehensive emergency medical communications service that should be integrated with the communication system of all other emergency response agencies include:

Reporting of Emergency Medical Situations

Emergency medical situations are generally reported directly by private or road-side telephone or indirectly through a telephone relay of radio reports from mobile law-enforcement, fire-fighting, or highway patrol vehicles; area surveillance helicopters; commercial trucks or private automobiles with citizen-band radios; or ham operators. The recipients of such reports include local telephone operators; police, fire, or highway patrol stations; ambulance dispatchers; local physicians; and emergency departments, each with limitations of flexibility and of cross-communication with other emergency response agencies.

To ensure efficient entry of the emergency victim into the emergency response system, the "911" emergency telephone reporting system should be adopted on a nationwide basis, the radiofrequencies employed by all emergency reporting agencies should be compatible for cross-communication, and the reception of telephone calls and monitoring of radiofrequencies should be a function of centralized urban or regional emergency communication centers.

Emergency Communication Centers

In urban areas that have adopted the "911" emergency telephone reporting system, emergency calls involving law-enforcement, fire-fighting, or ambulance services are usually directed to a facility in a police or fire department. In the medical area, the responsibilities of this facility are usually limited to relaying of ambulance calls to the dispatchers of one or more ambulance organizations within the area. In some urban areas, Emergency Operating Centers have been established for the reception of all emergency calls and inter-communication for mobilization and direction of agencies required to cope with the emergency situation. These centers are usually activated only in case of a major public disorder or a local natural disaster. More than 3600 local Emergency Operating Centers have been established throughout the nation under the Civil Defense Program for coordinated response to cope with problems of logistical support, restoration of utilities, law enforcement, financial and welfare assistance, and other responsibilities automatically delegated to more than 20 federal agencies for local support in disaster areas under direction of Federal Disaster Centers of the Office of Emergency Preparedness of the Executive Office of the President. The compatibility of communication facilities of these Centers locally, regionally, and nationally provides a model for the integration of all emergency response systems. They should be activated and utilized on a 24-hour-a-day basis on a national scale to serve emergency medical service needs and thus be immediately effective in case of natural disaster or national emergency.

In order to ensure adequate response to the needs of all citizens requiring emergency care, centralized urban or regional emergency communication centers should be established throughout the nation. The emergency component of each Center should be provided with radio-frequencies and telephone facilities necessary to coordinate dispatching and traffic routing of ambulance and rescue vehicles; to maintain up-to-date inventories of hospital bed capacities for emergency admissions, of emergency department loads and capabilities, and of blood supplies, on which to base systematic distribution of casualties to appropriate hospitals in keeping with their levels of capability to render care to patients in accordance with the gravity of their injuries or illnesses; to coordinate the response of traffic-control, fire-fighting, and law-enforcement agencies, utilities, and other agencies necessary to rescue and accessibility to initial emergency medical care of residents of the region; and to coordinate support from or provide support to other regional or national Emergency Communication Centers in case of natural disaster or national emergency.

Ambulance Communications

In surveys conducted in the period 1965 to March 1971,[16] 56 percent of ambulances were equipped for radio communication between ambulances and dispatchers, and less than 7 percent were equipped for communication

between ambulances and hospitals. Although ambulances complying with the design criteria of the National Highway Traffic Safety Administration are equipped with radios, many thousands of the hearse, limousine, and station-wagon type are not. Two-way radio communication between ambulances and dispatchers is essential not only for dispatching and routing, but also for notification of the time of arrival of the ambulance at the scene, for a situation report of the number of casualties and the nature of their injuries or illnesses, and for calls for ancillary help, rescue equipment, fire fighting, traffic control, law enforcement, management of distrupted utilities, and identification of hospitals to which victims are to be delivered. Portable radios are necessary for communication between technicians of single ambulances or rescue units and between multiple units at the scene of an emergency. In addition, radio facilities must provide duplex capability for transmission from the scene and during transport of electrocardiograms and other indications of vital signs to hospitals or diagnostic centers for interpretation by physicians and for two-way communication between the ambulance technicians and the physician for direct consultation, guidance, and direction in the care of life-threatening conditions, including defibrillation and the administration of drugs.

Hospital Communications

Intrahospital radio and telephone communication systems are necessary to mobilize specialty teams, equipment, and supplies for emergencies arising in the emergency department, in intensive-care units, or at the patient's bedside, and to monitor vital signs during transfer from the emergency department and in intensive-care units and wards. Two-way radio communication must be provided between the hospital and ambulance dispatchers and ambulances for consultation and direction of emergency care and triage; with police for control of traffic and people; with other hospitals for transfer of patients, assistance, and continuing inventory of patient capacity and supplies; and with the emergency communication center for triage and distribution of patients, ancillary equipment, supplies, and assistance and coordination to meet disaster requirements. Both radio and telephone communications are required to meet hospital needs. Reliance should not be placed solely on telephone communications.

Support of Communication Systems

Federal agencies whose programs provide support of planning, standards, facilities, equipment, training, and assistance at state and local levels related to communication systems that should be coordinated to ensure nationwide compatibility of emergency medical communication systems include: the Community Health Service, the Appalachian Demonstration Health Program of the Comprehensive Health Planning Service, the Division of Emergency Health Services of the Federal Health Programs Service, the Regional Medical Programs Service, and the Health Care Facilities Service (Hill-Burton), all of the Health Services and Mental Health Administration of the Department of Health, Education, and Welfare; the Poison Control Information Centers and the National Electronic Surveillance System of

the Food and Drug Administration of the Department of Health, Education, and Welfare; the Military Assistance to Safety and Traffic (MAST) helicopter program of the Department of Defense, Department of Transportation, and Department of Health, Education, and Welfare; the natural disaster and national emergency programs, the emergency operating centers, and the national warning system of the Office of Civil Defense of the Department of Defense; the Division of Emergency Medical Programs of the National Highway Traffic Safety Administration and the health care and safety programs of the Federal Highway Administration, the Federal Railroad Administration, the Federal Aviation Administration, and the U. S. Coast Guard of the Department of Transportation; the Law Enforcement Assistance Administration of the Department of Justice; the fire control programs for state and national forests and the Rural Electrification Administration of the Department of Agriculture; the Model Cities Program of the Department of Housing and Urban Development; the National Weather Service of the Department of Commerce; regulation of telephone, radio, and television, including allocation of radio and television frequencies, by the Federal Communications Commission; and the voice communication vital physiologic data transmission programs of the National Aeronautics and Space Administration.

Recommendation

In view of the importance of a centralized communication system for direction of all emergency response agencies to meet the hourly needs of every community, the requirement that this system be compatible at regional and state levels in case of natural disasters and at a national level in case of a national emergency, and the need to integrate the requirements of emergency medical communication with those of all other emergency response agencies at all levels, it is recommended that an effective interagency coordinating group on emergency communications be established in the Executive Office of the President under the leadership of the Office of Emergency Preparedness and the Office of Telecommunications Policy for coordination of application of the resources of all federal agencies whose support of communication systems is related to the roles of emergency response agencies at local, regional, state, and national levels.

AMBULANCES AND AMBULANCE EQUIPMENT

More than 20,000 of the 25,000 ambulances of the nation are of the hearse, limousine, or station-wagon type that are inadequate in space and equipment.[16] Standards for ambulance design and equipment recommended by committees of the National Academy of Sciences-National Research Council[5,6] and of the American College of Surgeons[13] have been adopted by the National Highway Traffic Safety Administration as the basis for matching fund support toward purchase of ambulances and their equipment[14,15] and by this agency and the Division of Emergency Health Services, PHS, as a basis for comprehensive health planning and for assistance to state health departments and public and private organizations in procurement at state and local levels. These standards have been widely endorsed by national medical organizations and providers of ambulance services and have stimulated unprecedented competition among ambulance-body manufacturers to provide vehicles and equipment suitable to the needs of trained ambulance emergency medical technicians. These standards do not apply to military field ambulances.

Funding criteria of the National Highway Traffic Safety Administration in terms of data requirements, training levels of ambulance technicians, and adherence to safety requirements have provided a strong incentive to improve reporting systems on ambulance services, to establish training programs for ambulance technicians, and to invoke safety regulations in the operation and maintenance of ambulances.

Other agencies that support purchase of ambulances and equipment include: the General Services Administration, which prescribes specifications for purchase of all ambulances and equipment for the use of federal agencies; the Health Care Facilities Service, HSMHA, for the purchase of hospital-based ambulances and equipment under the Hill-Burton program; the Small Business Administration, which grants low-interest loans to purchase ambulances and equipment; the Appalachian Regional Commission and the Appalachian Demonstration Program of the Comprehensive Health Planning Service, HSMHA, for purchase of ambulances and equipment for the Appalachian area; and the Social Security Administration, which prescribes conditions for payment for emergency ambulance services. Funding for surveillance of the efficacy and safety of medical equipment is also of concern to the Food and Drug Administration, DHEW, and to the Office of Consumer Protection of the Executive Office of the President.

Recommendation

In view of the leadership of the Department of Transportation in application of federal motor vehicle safety standards to the design and functional requirements of ambulances, and in view of the extent to which this agency has caused these standards to be adopted on a national scale and has supported procurement of ambulances and equipment, it is recommended that this program be accelerated and expanded, that standards

prescribed under the Emergency Medical Services Program of the National Highway Traffic Safety Administration for design and safety of ambulances and ambulance equipment be adopted nationwide, and that application of resources of all other federal agencies that support the purchase of ambulances and equipment should be contingent on compliance with the Department of Transportation standards.

EDUCATION AND TRAINING OF EMERGENCY MEDICAL SERVICES PERSONNEL

Ambulance Emergency Medical Technicians

On the basis of current surveys,[16] it is estimated that only 65 percent of the more than 200,000 ambulance attendants of the nation are trained to the level of the advanced first aid course of the American National Red Cross or higher levels, 25 percent are trained at a level less than the Red Cross course, and 10 percent have no training in the fundamentals of first aid.

Guidelines and recommendations of the National Academy of Sciences-National Research Council Committee on Emergency Medical Services on training of ambulance personnel,[3] published in 1968, and subsequent recommendations by the Committee on minimal requirements at the basic level, refresher training, and advanced training[4] for ambulance attendants have been widely adopted by professional organizations, ambulance operators, and a limited number of federal and state agencies as standards for the training of ambulance emergency medical technicians. A federal job description for ambulance emergency medical technicians, developed through collaboration with the Division of Emergency Medical Programs, Department of Transportation, and the Division of Emergency Health Services, Public Health Service, has been submitted by the Department of Transportation to the Department of Labor for incorporation in the Dictionary of Occupational Titles of the U. S. Employment Service.

The ultimate goal expressed in the NAS-NRC guidelines and recommendations on the training of ambulance personnel is to create a nationwide corps of career ambulance emergency medical technicians who are qualified to carry out measures now applied by allied health personnel in emergency departments and by medical corpsmen in combat areas. It is estimated that fewer than 35 percent of all ambulance personnel are now qualified at the recommended minimal basic level.

Basic-level Training. A curriculum developed by the American College of Surgeons[18] and a detailed course developed by the Department of Transportation,[19,20,21] which were published in 1969, serve as the basis for an 80-hour basic-level training program, which has been implemented on a national scale by medical centers, colleges, professional organizations, and local physicians to the extent that more than 25,000 students have undergone this training in the last 2 years and more than that number are in the process of training. This program qualifies for matching fund support by the Department of Transportation for establishment of training centers, procurement of training aids, and conduct of courses, and it is the basis on which the Division of Emergency Medical Programs, Department of Transportation, and the Division of Emergency Health Services, Public Health Service, provide guidance and assistance in organizing and carrying out the program at state and local levels.

Refresher Training. Formal refresher training programs for ambulance emergency medical technicians are conducted in many sections of the nation by the American Academy of Orthopaedic Surgeons, the American College of Surgeons, and others. Guidance for planning and conducting such programs is provided in the form of a Course Guide[22] and Instructor's Lesson Plans[23] published by the Department of Transportation in 1971. Satisfactory completion of a refresher course should be required of every ambulance emergency medical technician at least every 3, and preferably every 2, years as a basis for certification and licensure by local and state regulatory agencies. To ensure a continuing correction of deficiencies in initial care and transportation, all emergency departments should conduct critiques with ambulance emergency medical technicians to emphasize the benefits of giving proper care and to demonstrate the penalties of giving improper care.

Advanced Training. A number of medical centers have independently established training programs for ambulance emergency medical technicians of greater length than that of programs intended to meet minimal basic-level requirements. Some of these pilot programs include specialized training in the care of the victims of myocardial infarction, several of which have been supported by the Regional Medical Programs Service. Graduates telemeter electrocardiographs and are authorized by physicians, through voice communication, to carry out defibrillation in selected cases. These and other advances have been incorporated in a report on guidelines and recommendations for a 480-hour advanced training program for ambulance emergency medical technicians that was published by the National Academy of Sciences-National Research Council Committee on Emergency Medical Services in 1970.[4] A program of this caliber must be supported, implemented, and progressively expanded, so as to provide ambulance emergency medical technicians qualified to render optimal prehospital care to the seriously injured or ill.

A 2-year college-level associate-degree program is now being developed by the Commission on Emergency Medical Services of the American Medical Association to qualify emergency medical technicians at a level comparable with that of certified x-ray, laboratory, inhalation therapy, and other technicians. This program would be conducted at medical centers that have active emergency services with the collaboration of community or junior colleges or vocational schools for instruction in basic medical sciences, rescue procedures, communications, and emergency-vehicle driving. Graduates would serve in emergency care areas of hospitals and on hospital-based ambulances.

Ambulance Dispatchers

Ambulance dispatchers should be trained at the basic level required of ambulance emergency medical technicians. Operators who receive emergency telephone or radio calls at police departments, fire departments, emergency communication centers, or "911" telephone exchanges should be versed in medical terminology, at least to the level of the advanced first-aid course of the American National Red Cross, so that they can obtain neces-

sary information from the caller and relay directions to ambulance dispatchers and information to hospital emergency departments and other emergency response agencies.

Nurses

It is now recognized that nurses who serve in emergency departments must be delegated greater responsibility in immediate care in life-threatening situations, and that they require training beyond that traditionally provided to those serving in operating rooms, postoperative-recovery units, intensive-care units, coronary-care units, and other emergency care areas of the hospital. The need for specialized training - such as that required for intubation, artificial ventilation, recognition and correction of cardiac arrhythmias, cardiopulmonary resuscitation, the utilization of specialized monitoring equipment, and initial management in case of drug overdose, coma, other unconscious states, obstetrical complications, and acute psychiatric disturbances - justifies development of comprehensive training programs and continuation courses for emergency department nurses, with appropriate recognition and definition of responsibilities of those qualified in this specialized area.

Emergency Department Physicians

Emergency departments must be staffed 24 hours a day by physicians especially qualified and experienced in the management of emergencies of all magnitudes. Large numbers of physicians are now devoting full time to this practice. Emergency physicians are being recognized as specialists, national organizations representing this field have been established, and specialty publications are being produced. Postgraduate and continuation courses must be developed to expand the capabilities of those whose former practice was limited to some specialized fields essential to comprehensive care. Residency programs in emergency medicine should be established on a nationwide basis, not only to fulfill requirements for direct patient care, but also to extend the role of the emergency physician beyond his responsibilities in the emergency department. He must be a preceptor for the training of ambulance emergency medical technicians, allied health personnel, nurses, and physicians in emergency care; a leader in his community in stimulating the organization and activities of emergency medical services councils; a coordinator in mobilization of emergency services in case of public disorder or natural disaster; and a spokesman for the role of emergency medical services in the total system of health care.

Medical School Programs in Emergency Care

Training in emergency medical care in graduate and postgraduate programs of medical schools and affiliated medical centers is generally limited to dealing with emergencies that arise in patients under active treatment in the hospital or continuation of care of those received on the ward from the emergency department. Students are rarely exposed to

the problems of initial care or rescue at the scene of onset of an emergency or during transport, and few gain experience in the emergency department. Although the medical school graduate may be expert in carrying out emergency measures applicable to specialized fields, he is limited in his capacity to cope with problems involving multiple systems, especially in case of severe injury.

There is a need to develop a fully comprehensive program in medical schools that incorporates aspects of emergency care of all specialized fields and provides instruction and experience in initial care in life-threatening situations; emergency department management; triage; transport; communication; mobilization and utilization of personnel, equipment, and supplies for mass casualty care in case of public disorder or natural disaster; and orientation to satisfy both civilian and military requirements in case of armed conflict or national emergency. To a varying extent, many of these subjects were offered on an elective basis at all medical schools through the Medical Education for National Defense (MEND) program, which was abolished in 1969. The relevant concepts of that program could well serve as a basis for development of a fully comprehensive program in emergency medicine in medical schools.

Support of Training Programs

Delineation by the Department of Health, Education, and Welfare, of standards for training programs for emergency medical services personnel and of guidelines for the application of the resources in support of these programs would identify the collaborative roles of federal departments and agencies other than the DHEW that are concerned with recruitment, training, and placement of personnel and would serve as a basis for coordinating and directing the application of resources by agencies within the Department of Health, Education, and Welfare in terms of the extent to which each agency supports funding of medical schools, medical centers, and hospitals; planning, implementation, and evaluation of training programs; funding for construction or alteration of teaching facilities; provision of faculties, training aids, and materiel; and utilization of representatives to provide skilled technical assistance to state and local planning agencies, teaching centers, professional bodies, hospitals, and other public and nonprofit organizations that conduct training programs.

Departments and agencies, other than the Department of Health, Education, and Welfare, whose roles and resources in support of recruitment, training, and placement should be coordinated with DHEW training programs for emergency medical services personnel are identified in the appendix to this report. These include the Department of Transportation, the Department of Labor, the Department of Defense, the Department of Commerce, the Veterans Administration, the Office of Economic Opportunity, and the Appalachian Regional Commission.

Within the National Institutes of Health, the program of the Bureau of Health Education is applicable to the training of ambulance emergency medical technicians, ambulance dispatchers, and hospital emergency medical

technicians by the Division of Allied Health Manpower; of nurses by the Division of Nursing; and of physicians by the Division of Physician and Health Professions Education. Support of personnel in specialized research areas essential to advancement of emergency medical care is provided under the fellowship and training programs in trauma research centers by the National Institute of General Medical Sciences, in head injury research centers by the National Institute of Neurological Diseases and Stroke, and to a varying extent in overall programs in specialized fields of other institutes of the National Institutes of Health.

Within the Health Services and Mental Health Administration, agencies whose resources are applicable to the training of emergency medical services personnel at all levels include grants to assist in planning, developing, and improving training programs by the Comprehensive Health Planning Service; grants to establish training programs by the Community Health Service; support of institutions and organizations to carry out research, training, demonstrations of patient care, etc., by the Regional Medical Programs Service; development of training standards, surveys, and assistance at state and local levels in implementation of training programs by the Division of Emergency Health Services of the Federal Health Programs Service; and support of demonstration training projects and evaluation and improvement of training programs by the National Center for Health Services Research and Development.

Emphasis on the need for training programs in emergency medicine is so new that nationally accepted standards and guidelines have been developed only for the basic-level, advanced-level, and refresher training programs for ambulance emergency medical technicians. Although a 2-year residency program for training physicians in emergency medicine is underway at the University of Cincinnati School of Medicine, standard curricula have not been developed for implementation of such courses on a nationwide scale. Comprehensive programs have not been developed in any medical school for the training of medical students in emergency medicine, and there are few refresher or continuing courses for emergency department physicians.

At this time, it is incumbent on professional bodies responsible for the conduct of training programs and on state and local planning agencies to identify their needs in support of training programs so that the roles of federal agencies can be delineated and the needs for appropriations by the legislative branch can be determined.

Recommendation

It is recommended that programs for the training of ambulance emergency medical technicians that are now being implemented on a nationwide scale through the joint efforts of the Division of Emergency Medical Programs of the Department of Transportation and the Division of Emergency Health Services of the Public Health Service be fully supported and accelerated; that standards

and requirements for training programs in emergency medicine for other allied health personnel, nurses, and physicians be established at the level of the Office of the Secretary, DHEW; and that the Office of the Secretary, DHEW, provide guidelines for the collaboration of other federal departments and for coordination and direction of application of resources of agencies within the DHEW in support of professional bodies and state and local planning agencies responsible for the conduct of training programs for emergency medical services personnel at all levels.

CATEGORIZATION OF HOSPITAL EMERGENCY CAPABILITIES

In the NAS-NRC report, "Accidental Death and Disability: The Neglected Disease of Modern Society,"[2] the following statements appear:

> "The current dictum that an ambulance should deliver a patient to the nearest emergency unit is no longer acceptable."
>
> "The patient must be transported to the emergency department best prepared for his particular problem. In the absence of a descriptive categorization of the level of care that might reasonably be expected at a facility, neither the patient nor the ambulance driver can judge which facility is adequate to the immediate need."
>
> "There is the obligation to the severely injured person as well as to the lone physician, to the small staffs of remote hospitals, and to institutions with minimal emergency department facilities that the public be thoroughly informed of the extent of care that can be administered at emergency departments of varying levels of competence."
>
> "Hospital emergency departments should be surveyed in a number of differing geographical areas to determine the numbers and types of emergency facilities necessary to provide optimal emergency treatment for the occupants of each region."
>
> "Once the required numbers and types of treatment facilities have been determined, it may be necessary to lessen the requirements in small institutions, increase them in others, and even redistribute resources to support space, equipment, and personnel in the major emergency facilities. Until patient, ambulance driver, and hospital staff are in accord as to what the patient might reasonably expect and what the staff of an emergency facility can reasonably be expected to administer, and until effective transportation and adequate communication are provided to deliver casualties to proper facilities, our present levels of knowledge cannot be applied to optimal care and little reduction in mortality or lasting disability can be expected."

This report contained general guidelines for categorization of hospital emergency capabilities that were incorporated in the Highway Safety Program Manual (Vol. 11 Emergency Medical Services) of the Department of Transportation, published in 1968[14] for the guidance of the state planning agencies in applying for matching funds for development of statewide systems of emergency medical care. These guidelines were the basis for a large number of state, regional, and metropolitan surveys of hospitals by state planning agencies, hospital associations, and others. Findings from these surveys have stimulated upgrading of some emergency

departments, consolidation of hospital emergency services in some communities, and recommendation by the Joint Commission on Accreditation of Hospitals that the degree to which a hospital provides emergency care should be guided by a community-based plan.[9]

The NAS-NRC Subcommittee on Hospital Emergency Facilities of the Committee on Emergency Medical Services reviewed numerous surveys and developed detailed criteria on which to base categorization. Representatives of federal agencies, professional organizations, and hospital associations participated in a conference on categorization of hospital emergency capabilities, held by the Commission on Emergency Medical Services of the American Medical Association early in 1971. The recommendations of this conference were published as guidelines for the categorization of hospital emergency capabilities.[24] Detailed criteria are provided for four categories, summarized as follows:

The Category I (comprehensive emergency service) hospital shall be fully equipped, prepared, and staffed on a 24-hour basis to provide prompt, complete and advanced medical care for all emergencies, including those requiring the most complex and specialized services for adults, children and infants, including newborns.

The Category II (major emergency service) hospital varies in that, while it shall be equipped, prepared, and staffed on a 24-hour basis in all medical and surgical specialties to render resuscitative and life support for adults, children and infants, including newborns, and supply definitive care for all such patients, transfer to other hospitals may be necessary for the occasional patient who requires follow-through care in very specialized units not available at a Category II hospital.

The Category III (general emergency service) hospital varies in that, while it shall be equipped, prepared, and staffed in the medical and surgical specialties necessary to render resuscitative and life-support care of persons critically ill or injured of all ages, transfer when necessary shall be provided for.

The Category IV (basic emergency service) hospital varies in that, while it shall be equipped, prepared, and adequately staffed to render emergency resuscitative and life-support medical services for all persons of all ages, transfer when necessary shall be provided for.

The major differences in criteria for categorization are the number of specialty services staffed on a 24-hour basis, the readiness to provide laboratory, radiological, blood bank, operating room, postoperative-recovery, and intensive-care facilities, and an areawide agreement for transfer to other hospitals, as necessary, of those patients who, after resuscitative and life-support care, require definitive specialty care. Common denominators of hospitals of all categories are requirements for acceptance of patients; availability of hospital records; audit and review of services; continuing education programs; in-house, or access to, poison control information centers; mass casualty plans, rehearsals, and

expansion capabilities; radio and telephone communication facilities; and accessibility of ground and air transport vehicles.

In general, the Category I hospital is in a large medical center with postgraduate training programs in all specialties; the Category II hospital is a large metropolitan facility with postgraduate training programs which may lack provision for some specialized care such as cardiac bypass, renal dialysis, a burn unit, etc.; the Category III hospital, with or without graduate programs, is located in medium or large communities with limited specialists, but with physician(s) in-house 24 hours a day; and the Category IV hospital is in the small or isolated community with few specialists and provision for registered nurse(s) coverage 24 hours a day and physicians on call.

The more remote the location of a facility, the greater is the requirement for initial life-support care, availability of physicians and trained allied health personnel, communication facilities, access to ground and air transport vehicles manned by properly trained and equipped personnel, and delivery of the patient to the hospital most suitable to his needs. Approximately three-fourths of fatalities from highway injuries occur in rural areas and in communities of fewer than 2,500 people. It is in these areas that every hospital should qualify at least as a Category IV facility.

Federal resources that should be coordinated in support of hospital emergency facilities include funding under the Hill-Burton program by the Health Care Facilities Service, HSMHA; state and areawide determination of the numbers and location of the facilities by the Comprehensive Health Planning Service and the Community Health Service, HSMHA; provision for facilities in the Model Cities Program of the Department of Housing and Urban Development; and categorization of hospitals of the Public Health Service, the Veterans Administration, and the Army, the Navy, and the Air Force hospitals of the Department of Defense for the care of populations served by these agencies and for supplemental service to citizens of the region served.

Agencies supporting some hospital emergency facilities include provision for intensive-care units by the Regional Medical Programs Service, HSMHA, communication facilities and hospital-based ambulance services by the National Highway Traffic Safety Administration of the Department of Transportation, and varying support identified in other sections of this report.

Recommendation

It is recommended that the utilization of resources of federal agencies in support of hospital emergency facilities be based on the requirement that professional bodies, hospital administrators, community governments and state and areawide planning agencies determine the number and location of hospitals that are necessary to provide optimal emergency services for

populations of prescribed emergency medical services areas and that the scope of emergency services provided by each hospital be based on categorization in terms of its capability to render initial emergency and definitive care for injuries or illnesses of all magnitudes.

FACILITIES FOR EMERGENCY CARE PENDING TRANSPORT AND HOSPITALIZATION

The frequency of onset of acute illness, especially heart attack, and the potential for accidental injury, even mass casualties, is such at industrial plants; large office buildings; airports; railroad stations; recreational, sports and other public assembly areas; and outpatient clinics, that facilities and trained personnel must be provided to carry out emergency resuscitative and life-support care pending transport of the ill or injured to a hospital. Of special concern is the excessive demand imposed on hospital emergency departments by millions of citizens who should be cared for in outpatient clinics during evening as well as daytime hours every day. Outpatient clinics of hospitals that maintain emergency departments should not be so located that nonemergency patients impede rapid triage and care of those with life-threatening injuries or illnesses. Some large industrial plants and clinics and a few airports are equipped and staffed to cope with major emergencies. Occupational health facilities of federal and some nonfederal buildings have limited capabilities for emergency care. In some areas first aid stations and ambulances or mobile coronary care units are provided at sports, recreational, and other public assembly events. All of these facilities should be fully equipped to carry out resuscitative and life-support care in case of external hemorrhage, respiratory obstruction, cardiac arrest, multiple injuries, diabetic coma, drug overdose, and other life-threatening conditions, and staffed by a registered nurse and allied health assistants under supervision of a physician on-duty or on-call that should be prepared to interpret electrocardiograms, perform intubation and defibrillation, administer drugs, and splint fractures.

Federal agencies whose resources are applicable to support of non-hospital emergency units include the first aid facilities of industrial plants under the Occupational Safety and Health Act by the Department of Labor, first aid facilities at airports and railway stations by the Department of Transportation, federal occupational health facilities in public buildings by the Civil Service Commission and the Public Health Service, the neighborhood clinics of the Office of Economic Opportunity of the Executive Office of the President and the clinical facilities of the Health Maintenance Organization of HSMHA.

Recommendation

It is recommended that the Department of Health, Education, and Welfare promulgate nationwide requirements for establishment of emergency medical care facilities at industrial plants, office buildings, airports, railway stations, public assembly areas, and outpatient clinics; that such facilities be equipped and staffed to provide optimal resuscitative and life-support emergency care for persons acutely ill or injured pending transport to a hospital; and that the application of resources of the DHEW and other federal agencies in support of these facilities be coordinated by comprehensive planning agencies and health departments at state and local levels.

REQUIREMENTS FOR A NATIONAL CENTER FOR DISASTER EMERGENCY MEDICAL SERVICES

In a report on the feasibility of establishing a national research and informational center for emergency and disaster medical services, prepared by a task force of the NAS-NRC Committee on Trauma in 1965-1966,[25] with the support of the Division of Health Mobilization of the Public Health Service, the following statements appear:

> "There is a large void in the information that arises from a single significant disaster concerning the exact numbers injured, the extent of injuries, the efficiency of care rendered before admission to an emergency department, the quality of medical care administered, and the final outcome in terms of lasting disability."
>
> "The findings of the Task Force clearly indicate that voluminous plans and directives, the extensive stockpiling of equipment and supplies, the distribution of guidelines for medical management in case of a national disaster and the conduct of periodic mass casualty drills have had less than the desired effect in upgrading the day-to-day care of the victims of trauma."
>
> "It is evident that a disaster program will not work unless optimal emergency medical services are practiced every day in every case requiring first aid, transportation, and emergency medical care."
>
> "Of special interest is the unusual stress placed upon the emergency services of our American communities during natural disasters. It is the disaster which brings into a magnified focus many of the deficiencies in daily emergency care. The striking feature of any review of these emergency and disaster situations is the repetition of errors in the medical management of injuries by both professional and nonprofessional personnel. In particular, the deficiencies in supportive functions of authority, communication, transportation, and hospital warning have made chaos a common denominator of all disasters, rendering ineffective much of the medical operation."
>
> "The Task Force believes unanimously that it is not only feasible but necessary to establish a center for the documentation and analysis of medical management and of the incidence and causes of morbidity and mortality from injuries. The findings of such a center would serve as a continuing basis for adaptation of measures now available but not used systematically or universally, and for research toward optimal immediate care, definitive treatment, and maximal rehabilitation of disaster victims and those

suffering accidental injury in normal times, riots, or national emergency."

In the NAS-NRC report,"Accidental Death and Disability: The Neglected Disease of Modern Society,"published in 1966,[2] the following statements appear:

"Because disasters occur repeatedly in this country and because progress has been slow in solving problems of caring for mass civilian casualties, medical problems encountered in disaster should be under continued study and analysis by multi-disciplinary groups. The need for integration of public resources in coping with material damage in disaster is apparent, but the community role in handling human casualties is less well prescribed. The Disaster Research Group of the Division of Anthropology of the National Academy of Sciences-National Research Council, in its extensive studies from 1951 to 1963 for the Office of Civil Defense, and the Ohio State University Disaster Research Center, established in 1963, have both concentrated on responses of local, state, and federal agencies to the stresses imposed by unexpected disaster with emphasis on behavioral and sociological problems. Efforts of the American College of Surgeons to encourage members to report on casualty care in disasters have added little substantive information on which to improve results. The Committee on Disaster Medical Care of the American Medical Association has attempted to identify potentials for improved care, but no national action program has been implemented."

"In no single large disaster do we have precise information on the causes of death, the numbers and types of injuries of survivors, or the rewards of efficiency and the penalties of inefficiency in rescue, first aid, transportation, and medical care. A pattern exists in the organization and functions of the Office of Emergency Planning of the Executive Office of the President for gaining this type of information and for implementing improvements in management and care that would result from its analysis. Trained disaster specialists based at eight federal centers throughout the nation move out at first warning to areas imperiled by disaster. On the basis of their assessments, the President can declare a major disaster; under the direction of the Office of Emergency Planning 24 agencies would be automatically authorized to provide assistance. These are concerned mainly with supplies, equipment, and personnel to clear debris; provide food, medicine, and shelter; restore utilities; enforce law and order; and render financial assistance and welfare services."

In the Disaster Relief Act of 1970 (PL 91-606, Sec. 203(h)), the following statement appears:

"The Director of the Office of Emergency Preparedness is authorized and directed to make in cooperation with the heads

of other Federal and State agencies, a full and complete investigation and study for the purpose of determining what additional or improved plans, procedures, and facilities are necessary to provide immediate effective action to prevent or minimize losses of publicly or privately owned property and personnel injuries or deaths which could result from fires (forest and grass), earthquakes, tornadoes, freezes and frosts, tsunami, storm surges and tides, and floods, which are or threaten to become major disasters."

The findings and recommendations in the report of the NAS-NRC Task Force on the Feasibility of Establishing a National Research and Informational Center for Emergency and Disaster Medical Services are as valid today as they were in 1966. Revision of the report and updating of the references would serve only to reinforce the case for establishing a center. There is no evidence that the findings and recommendations of the report were recognized or acted on at any level of the Department of Health, Education, and Welfare higher than the Division of Health Mobilization (now the Division of Emergency Health Services).

Existing programs that should be expanded and coordinated with the functions of a National Center for Disaster Emergency Medical Services include those on accident prevention - formerly assigned to the Division of Health Mobilization, PHS, later incorporated in the Injury Control Program of the Environmental Control Administration, PHS, and now unidentified in the functions of the Bureau of Community Environmental Management, PHS - the Poison Control Information Center and the National Electronic Surveillance System of the Food and Drug Administration;[26] the National Center for Health Statistics, PHS; the Office of Emergency Preparedness, Executive Office of the President; and the Office of Civil Defense, Department of Defense. The organization and functions of the Ohio State Disaster Research Center, as related to the consequences of disaster in areas other than medical, and the computerized Trauma Registry of the Illinois Department of Health[27] for analysis of activities of 20 trauma centers in Illinois could serve as models for development of a program for identification of the causes of death and disability and analysis of efficiency and quality of delivery of emergency medical care in disasters.

Recommendation

It is recommended that the Department of Health, Education, and Welfare, in collaboration with the Office of Emergency Preparedness of the Executive Office of the President, the Office of Civil Defense of the Department of Defense, and other agencies responsible for day-to-day emergency medical services and relief in case of disaster, support establishment of a National Center for Disaster Emergency Medical Services. Functions of the Center would be documentation and analysis of delivery of emergency medical care in disasters, to include the numbers and types of casualties; the precise causes of death or disability; preventive measures necessary to reduce mortality and morbidity; evaluation of efficiency and quality of delivery of emergency medical services

in public disorders, disasters, or a national emergency; dispatch of field teams to disaster sites for coordination of emergency medical services requirements with the command and control functions of federal disaster centers and of disaster relief agencies; service as a consulting body for the government, the health disciplines, industry, and other organizations affected by disasters, and maintenance of an information clearinghouse and educational programs to disseminate knowledge on the application of existing technology and the orderly expansion of day-to-day emergency medical care services to meet the needs imposed by disaster.

RESEARCH IN TRAUMA

While hundreds of millions of dollars are allocated annually by the Congress for research in malignancy and cardiovascular diseases, it is estimated that less than $10 million are spent annually on fundamental and clinical research in trauma.

To determine accurately the physiological changes produced by trauma alone, studies must be initiated promptly on persons who are otherwise healthy at the moment the stresses of trauma are imposed. Only by this approach can the hemodynamic, metabolic, ultrastructural, and other changes of diseases be compared with or differentiated from the hypoxia, collapse, and other effects of trauma as the sole etiological factor.

Relatively little has been done in fundamental studies on acutely injured subjects on wound healing, wound infection, hemodynamic, metabolic, cardiac, and respiratory changes following trauma; ultrastructural alterations in injury and shock; the effects of head, spinal cord, and nerve injuries; paralytic ileus; posttraumatic renal insufficiency; fracture healing; resuscitation; and many other areas of basic importance.

In 1966 the National Institute of General Medical Sciences,recognizing the need for coordination and identification of research needs in trauma, developed a program that supported establishment of a limited number of trauma research centers.[28] Soon after, the National Institute of Neurological Diseases and Stroke supported establishment of a number of head injury research centers. These centers have not only contributed materially to better understanding of physiological changes produced by trauma, but serve as models for development of trauma centers that should be established in the majority of the Category I and Category II hospital services throughout the nation.

The greatest reduction of mortality and lasting disability from burns, owing to contributions of specialized burn centers, attests to the benefits that can be afforded millions of citizens by concentrating the talents of multidisciplinary teams of clinicians and basic scientists in centers devoted to fundamental research on the causes of death and disability from trauma and advances in resuscitative and definitive clinical management.

Federal agencies whose resources should be applied in support of fundamental research in trauma and the establishment of trauma research centers include the National Institute of General Medical Sciences and the National Institute of Neurological Diseases and Stroke of the NIH; the Medical Research and Development Commands of the Army, the Navy, and the Air Force of the Department of Defense; the Veterans Administration; and the National Center for Health Services Research and Development, the Health Care Facilities Service, and the Regional Medical Programs Service of the HSMHA.

Recommendation

It is recommended that federal resources in support of fundamental research in trauma and in establishment of trauma research centers be expanded to a degree that will reflect appropriate concern that trauma is the leading cause of death in all persons aged 1 to 38 and funded in amounts that will be proportionate to the vast sums allocated to research in malignancy and cardiovascular diseases.

APPENDIX: FEDERAL AGENCIES WHOSE RESOURCES ARE RELATED TO ELEMENTS OF AN EMERGENCY MEDICAL SERVICES SYSTEM

DIVISION OF EMERGENCY HEALTH SERVICES, FEDERAL HEALTH PROGRAMS SERVICE, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

The Division of Emergency Health Services is the only unit identified within the Public Health Service whose title connotes a responsibility and function directly related to emergency health care for the entire population. It has a mechanism for establishing a comprehensive information clearinghouse, for providing guidance and assistance in emergency medical care program development among all federal agencies, and for coordinating programs through state health departments and other state and local agencies and organizations with resources that can be used in the development and implementation of an effective emergency medical care system.

The Division's stated mission is the improvement of the delivery and quality of emergency health services related to both acute illnesses and injuries as they occur day-to-day and in natural and man-made disasters, as follows:

"The Division's program takes into consideration a planned approach to linking the community ambulance services and hospitals into an integrated system. This system must include:

"The assumption of responsibility by public health officials, medical organizations and other interested agencies, including the establishment of a community emergency health services council.

"The establishment and maintenance of standards for personnel, vehicles, equipment, and facilities.

"A communication system that will permit early detection of the emergency, rapid dispatching of required services, and continuous contact with ambulances and hospitals.

"A training program that will prepare professional and allied health personnel to care for patients in accordance with their emergency needs.

"Public education, including first aid or medical self-help training, and emergency medical identification for those with medical conditions that might create or aggravate an emergency.

"Research to find better emergency health care techniques and ways of delivering services to patients where and when they are needed.

"Assistance in organization and development of emergency health services systems at community levels."

The Division's emergency medical stockpile is designed to provide resources for medical care in the event of nuclear disaster; natural disasters, such as floods, hurricanes, and explosions; and other emergencies, such as civil disturbances. The medical stockpile consists of 200-bed packaged disaster hospitals, hospital reserve disaster inventories, and 50-bed packaged natural-disaster hospitals.

Authorizing legislation: P.L. 78-410 - Public Health Service Act 78 Stat. 682 Sec. 301 and 311. 50 U.S.C., App. 2281 (h), Civil Defense Act of 1950.

DIVISION OF EMERGENCY MEDICAL PROGRAMS, DEPARTMENT OF TRANSPORTATION

The Highway Safety Act of 1966 requires that states have a highway safety program in accordance with program standards promulgated by the Secretary of Transportation. Standard 4.4.11 of this program, entitled "Emergency Medical Services," broadly outlines the elements required in that part of a state's program. The purpose of this standard is to improve the life-saving capability of emergency medical services through personnel training, proper equipment, communication, operational coordination, and comprehensive planning at both state and local levels.

Section 402 of the Act provides for funding assistance to states for the conduct of their highway safety programs. Most of the activity in support of state highway safety programs under Sec. 402 of the Act, as related to Standard 4.4.11, can be broadly classified into the following categories: (1) survey of emergency medical services resources, (2) development of comprehensive emergency medical services plans at state and local levels, (3) emergency medical personnel training, (4) assistance in purchase of ambulances and equipment and in operation of ambulance services, (5) emergency communication, (6) helicopter use, and (7) collection and evaluation of data on emergency medical services. More than 300 state and local highway safety projects in emergency medical services had been approved under Sec. 402 of the Highway Safety Act of 1966 and funded in excess of $18 million as of 30 September 1969. It is estimated that approximately $35 million will have been obligated by the end of FY 1972.

Section 403 of the Act authorizes funding of emergency service plans and demonstration projects dealing with the effectiveness of emergency medical care systems. These funds are expended on an individual-project basis and may be used either independently or in cooperation with other federal departments or agencies for (1) grants to states or local agencies, institutions, and individuals for training or education of highway safety personnel, (2) research fellowships in highway safety, (3) development of improved accident investigation procedures, (4) emergency service plans, (5) demonstration projects, and (6) related activities that are deemed by the Secretary of Transportation to be necessary to carry out the purposes of this section.

Authorizing legislation: Public Law 89-564, 89th Congress, S-3052, 9 September 1966.

COMPREHENSIVE HEALTH PLANNING SERVICE, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

This program, authorized under Sec. 314 of the Public Health Service Act, as amended by Public Law 89-749 and amendments of 1967, includes:

Formula Grants to States for Comprehensive Health Planning (314-a)

Grants to assist the designated state agency in administering the planning process of a "plan for Comprehensive Health Planning" and its submission to the Surgeon General of the Public Health Service.

Project Grants for Comprehensive Areawide Health Planning (314-b)

Grants to assist public or nonprofit private agencies in developing comprehensive regional, metropolitan, or local area health plans.

Project Grants for Training. Studies and Demonstrations (314-c)

Grants to public or nonprofit private agencies, institutions, or organizations (including universities) to improve health planning (training).

COMMUNITY HEALTH SERVICE, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

This program, authorized under Sec. 314 of the Public Health Service Act, as amended by Public Law 89-749 and amendments of 1967, includes:

Formula Grants to States for Public Health Services (314-d)

Grants to states to establish and maintain adequate public health services.

Project Grants for Health Services Development (314-e)

Grants to help meet health needs of limited geographic cope or of special regional or national significance, and to stimulate innovation in provision of health services.

APPALACHIAN DEMONSTRATION HEALTH PROGRAM, COMPREHENSIVE HEALTH PLANNING SERVICE, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

To demonstrate the value of adequate health facilities and services to the economic development of the Appalachian region, Sec. 202 of the Appalachian Regional Development Act authorizes the Secretary of HEW to make grants for planning, constructing, equipping, and operating multicounty demonstration health projects, including hospitals, regional health diagnostic and treatment centers, and other facilities and services necessary to health.

Grants are also authorized under this section for the operation of a demonstration health project (including initial operating funds comprising, among other things, the cost of employing, training, and retraining qualified personnel). Funding is up to 100% of the cost for the first 2-year period of the grant.

Authorizing legislation: Appalachian Regional Development Act of 1965, Sec. 202.

REGIONAL MEDICAL PROGRAMS SERVICE, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

The Division of Regional Medical Programs (RMP) of this Service, through grants and contracts and technical and professional assistance, supports the planning, development, and operation of regional programs to reduce illness, disability, and premature deaths resulting from heart disease, cancer, stroke, and related diseases. These programs link medical schools, medical research centers, hospitals, and other health organizations and institutions through regional cooperative arrangements, in order to carry out research, training, demonstrations of patient care, and other activities to achieve more widespread and effective use of the latest advances in the diagnosis and treatment of these diseases.

A significant portion of the RMP effort is related to emergency medical care. This includes educational programs in emergency management of victims of heart attack or stroke, and provision of mobile coronary-care units, hospital coronary-care units, and intensive-care units.

A library containing general information on emergency health services, transportation, and communication has been developed. The Regional Medical Programs Service has also accumulated mathematical and simulation models of emergency medical service systems, emergency communication systems, emergency transportation systems, and training programs. Consultation and support have been provided to numerous RMP regions requesting assistance in the formation of emergency medical systems.

Authorizing legislation: Heart Disease, Cancer, and Stroke Amendments of 1965 (Public Law 89-239) and of 1970 (Public Law 91-515).

NATIONAL CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

This organization has the responsibility, by means of grants and contracts, for supporting, promoting, and stimulating a national program of health services research, development, and demonstrations, including: improving the availability of health services to all people; assisting the health professions in improving their capabilities for assessing the quality of their services; investigating the comparative cost of alternative methods of

providing and financing health services; accelerating application of new or improved techniques for prevention, diagnosis, treatment, and control of diseases and disabilities; and designating and demonstrating experimental health service systems in urban and rural areas.

Demonstration projects, using new methods for the training of manpower, are the basic interest of this program. Once the effectiveness of such training programs has been demonstrated, other sources of funding are necessary.

Authorizing legislation: Sec. 301 (42 U.S.C. 241) and Sec. 304 (42 U.S.C. 242 B) of the Public Health Service Act as amended by Public Law 90-174, Partnership for Health Amendments 1967, 5 December 1967. Federal Register, Vol. 33, No. 212, 30 October 1968.

HEALTH CARE FACILITIES SERVICE, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

This program provides consultative and administrative services, under the Hill-Burton Program, to the states in carrying out their programs for the construction and modernization of public and private nonprofit community hospitals and other medical facilities as may be necessary in conjunction with extending facilities to furnish adequate hospital, clinical, or similar services. A further objective is to stimulate the development of new or improved types of physical facilities for medical diagnostic, preventive treatment or rehabilitative services and to advance the effective development and utilization of hospitals, clinics, and similar facilities and resources through development of guidance material.

Consultative services are available to any state health department or health facility requiring these services in the planning, construction, modernization, equipping, and utilization of health facilities. Regional staffs participate in the administration of related programs by providing administrative, architectural, and engineering services for the planning, construction, and modernization of community mental health centers, facilities for the mentally retarded, educational facilities, health facility projects assisted under the Appalachian Redevelopment Act, and sheltered workshops under the Vocational Rehabilitation Act.

A feature of the Hill-Burton Program since its inception has been the consultative service provided at the regional and federal levels. Architects, engineers, and equipment specialists serve on staffs that help communities plan hospitals before starting to build. In addition, guidelines are published on many phases of design, construction, equipment, and operation. These aspects of the program have grown to new dimensions as the hospital community has come to rely on the state Hill-Burton agencies for guidance and as Hill-Burton studies have opened the door to new techniques, new methods of operation, and new concepts of promoting better health.

Authorizing legislation: Public Law 83-443, as amended by Title IV Public Law 90-574.

NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES, NATIONAL INSTITUTES OF HEALTH

Resources of the National Institute of General Medical Sciences that are related to emergency medical care include grants for research in trauma and shock, support of special trauma research centers, and fellowship and training programs. Current expenditures for support of research grants and seven trauma centers are in the amount of approximately $3 million annually, a major portion of which is committed to continuation of the centers.

Authorizing legislation: 42 U.S.C. 241, Public Health Service Act, Sec. 301 (h).

NATIONAL INSTITUTE OF NEUROLOGICAL DISEASES AND STROKE, NATIONAL INSTITUTES OF HEALTH

Resources of the National Institute of Neurological Diseases and Stroke that are related to emergency medical care include research on accidental injury to the central nervous system, grants for facilities and equipment for special head injury centers, and fellowships and training programs. Current expenditures for support of research grants and eight head injury centers are in the amount of approximately $2.6 million annually of which approximately $925,000 is committed to head injury centers.

Authorizing legislation: 42 U.S.C. 241 Public Health Service Act, Sec. 301 (c) and (h).

DIVISION OF ALLIED HEALTH MANPOWER, BUREAU OF HEALTH MANPOWER EDUCATION, NATIONAL INSTITUTES OF HEALTH

This Division supports training of allied health personnel by grants of various kinds:

Basic Improvement Grants to improve the quality of educational programs for allied health professions specified in regulations. Funds may be used to support some costs, such as for equipment, supplies, books and periodicals, salaries and associated fringe benefits of faculty and supportive staff, and alteration and renovation of teaching facilities. Grants are awarded on a formula basis allowing $5,000 for each eligible curriculum plus $500 multiplied by the number of students enrolled on 15 October of the federal fiscal year in which application is made.

Special Improvement Grants to contribute toward provision, maintenance, or improvement of specialized functions that a training center serves. Individual grants, awarded on a competitive basis, up to $100,000 would be available from funds not required for Basic Improvement Grant entitlements.

Advanced Traineeships to provide support of students taking advanced training to prepare them to serve as teachers, administrators, supervisors, and specialists in the allied health professions. Awards are made to individuals through institutions eligible as training centers for allied health personnel. Trainees must have completed basic professional training necessary for certification, registration, licensure, or employment in one of the allied health professions specified in regulations.

Construction Grants to aid in construction of new facilities or replacement or renovation of existing facilities for training centers for allied health personnel. The federal share may be up to two-thirds of the cost for a new facility or major expansion of an existing facility; otherwise, up to 50%.

Developmental Grants to develop, demonstrate, or evaluate curricula and methods for the training of health technologists.

Authorizing legislation: Allied Health Professions Personnel Training Act of 1966, Public Law 89-751, as amended by Health Manpower Act of 1968, Public Law 90-490.

DIVISION OF PHYSICIAN AND HEALTH PROFESSIONS EDUCATION, BUREAU OF HEALTH MANPOWER EDUCATION, NATIONAL INSTITUTES OF HEALTH

The Physician Manpower Health Professions Training Program is concerned with the education and training of physicians and with undergraduate courses in continuing education. The primary thrust of the program is to increase the number of physicians. Current emphasis is to identify and promote the application of ways and means to improve the efficiency of physicians. Of particular interest is the current use of physicians' services in emergency departments and the specialized training in support of the professionals involved in emergency services within other areas of the hospital.

Authorizing legislation: Public Health Service Act, Sec. 301 (c), as amended in 42 U.S.C. 241 (c), and Sec. 301 (d), as amended in 42 U.S.C. 241 (d).

DIVISION OF NURSING, BUREAU OF HEALTH MANPOWER EDUCATION, NATIONAL INSTITUTES OF HEALTH

Special project grants for improvement in nurse training through planning, developing, or establishing new programs or modifications of existing programs of nursing education; improving curricula of schools of nursing; conducting research in various fields of nursing education; assisting schools of nursing that are in serious financial straits to meet their costs of operation or to maintain or meet accreditation requirements; and assisting agencies, organizations, or institutions to meet the costs of projects that will help to increase the supply of adequately trained nursing personnel. Grants are provided both to schools of nursing and to individual students.

Authorizing legislation: Health Manpower Act of 1968, Title II.

OFFICE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Grants are provided to assist states in maintaining, extending, improving, or developing new programs in vocational and technical education at less than baccalaureate level in high schools, junior and community colleges, and technical institutes, and in 4-year colleges and universities under approved state plans. In addition to conduct of training programs, special services may include demonstration and experimental programs, development of instructional material, and technical and training supervision.

Eligible for training are persons attending high school; those who have completed or left high school, but can study full time; those in the labor market who need training or retraining; and those with academic or socioeconomic handicaps.

The purpose of the Vocational Education Research Program is to provide funds through the Office of Education to state departments of education for grants and contracts for research in vocational education; for training programs designed to familiarize vocational and education personnel with research funding and successful pilot and demonstration projects; for experimental development and pilot programs and projects designed to test the effectiveness of research findings; for dissemination of findings of projects; for development of new curricula; and for projects related to education for new careers and occupations.

The Division of Manpower Development and Training in the Office of Education, through delegation, administers the responsibilities of the Secretary of Health, Education, and Welfare under the Manpower Development and Training Act (MDTA). HEW's primary responsibility is to provide institutional training, including basic education, communication skills training, and prevocational, vocational, and technical training, on a part-time or full-time basis. When undertaken in cooperation with industries and business, this type of education is referred to as "cooperative training." Necessary supportive services - such as legal, social, and health guidance and counseling - may also be provided. It is the responsibility of the Secretary of Labor to place qualified trainees in employment when training is completed.

Authorizing legislation: Vocational Education Act of 1963.

NEW CAREERS - SPECIAL PROJECTS, DHEW

This program provides grants to state vocational rehabilitation agencies to enable them to develop new programs to recruit and train the handicapped to provide them with new career opportunities in rehabilitation, health, welfare, public safety, law enforcement, and other appropriate fields.

Authorizing legislation: Public Law 88-452, Economic Opportunity Act of 1964, as amended.

OFFICE OF ECONOMIC OPPORTUNITY, EXECUTIVE OFFICE OF THE PRESIDENT

The Community Action Program of OEO provides grants for the establishment of health centers that offer comprehensive health care for low-income persons.

The health care may include treatment, screening and diagnostic services, home care, out-reach rehabilitation, dental care, family planning, mental health care, and other health-related services. In addition, the grants may help in obtaining equipment and supplies, training personnel, evaluating projects, and transporting patients.

This program, through comprehensive health care at neighborhood levels, provides a resource that renders outpatient care to those who would otherwise seek services at overcrowded hospital emergency departments.

Representatives of the Community Health Service, PHS, render professional medical advice on projects involving neighborhood health center activities.

Authorizing legislation: Economic Opportunity Act of 1964, as amended; Public Law 89-749; Public Law 90-222, 81 Stat. 672.

COOPERATIVE AREA MANPOWER PLANNING SYSTEM (CAMPS)

This program, formalized by Executive Order 11422, is headed by a National Manpower Coordinating Committee composed of one representative of each participating agency - namely the Department of Labor; the Department of Health, Education, and Welfare; the Department of Agriculture; the Department of the Interior; the Department of Housing and Urban Development; the Department of Commerce; the Civil Service Commission; and the Office of Economic Opportunity. The Committee chairman is the Department of Labor representative, currently the Assistant Secretary for Manpower.

The purpose of the program is to provide for the systematic planning of manpower and related programs at the national, regional, state, and area levels. The National Committee issues policy guidelines and budget estimates each year. State and area CAMPS committees develop comprehensive manpower plans in conformity with these guidelines. After approval of the plans by regional committees, individual projects are processed by the participating program agencies.

Reference:

1969 Listing of Operating Federal Assistance Programs Compiled During the Roth Study, p. 674.

OFFICE OF CIVIL DEFENSE, DEPARTMENT OF DEFENSE

The basic programs of this office are disaster-oriented. However, several aspects of these programs have a direct relationship to day-to-day emergency medical services systems throughout the country.

On a matching fund basis, more than 3000 OCD Emergency Operating Centers are in existence throughout the United States. Although they are to be used primarily for civil-defense emergencies (nuclear and natural disasters), a mechanism exists to adapt these facilities to serve as community emergency communication centers on a day-to-day basis; this resource has rarely been utilized at local, state, or regional levels.

Through the surplus-property program, local civil-defense agencies can purchase surplus military equipment and supplies for use in their communities. Communication equipment is thus available for use in support of a community's emergency medical services system.

Authorizing legislation: Federal Civil Defense Act of 1950, as amended by Public Law 81-920.

MILITARY ASSISTANCE TO SAFETY AND TRAFFIC (MAST), DEPARTMENT OF DEFENSE, DEPARTMENT OF TRANSPORTATION, AND DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

The MAST project, announced jointly by the Secretaries of the Department of Defense and the Department of Transportation on 15 July 1970, is designed to determine the value of helicopters in providing medical assistance to traffic-accident victims and other persons needing emergency medical care. The Army is designated as the Department of Defense Executive Agent for the project.

The initial program was begun in mid-July in the San Antonio, Texas, area by Army air ambulance companies of Fort Sam Houston, Texas. Additional programs are conducted at Mountain Home Air Force Base, Idaho; Luke Air Force Base, Arizona; Fort Lewis, Washington; and Fort Carson, Colorado.

At the completion of the test period on 31 December 1970, the program was evaluated to determine the effectiveness of communication and coordinating systems, requirements for civilian and military participation, the feasibility of the use of other services and reserve army aviation units, and training requirements for program participants.

BUREAU OF COMMUNITY ENVIRONMENTAL MANAGEMENT, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

Under a recent organizational directive, the functions of the Injury Control Program of the Environmental Control Administration have been transferred to the Bureau of Community Environmental Management. The mission of the Injury Control Program had direct relationship to the delivery of emergency medical care.

Data on the incidence and nature of accidental injuries and emergency illnesses were derived through identification of the ways in which the products of industry are involved in the etiology of these emergencies. This information influences the type of emergency care administered and the ultimate prognosis, while serving environmental control agencies in identifying etiologic factors, the correction of which may prevent or minimize injury or illness.

In addition to the functions performed by that agency in surveillance, testing, epidemiology, laboratory research, industry liaison, criteria and standards, and public information and education, grants were made for data gathering, determination of improved methods of treatment, research training grants, and training programs for physicians, nurses, and allied health personnel. The extent to which these functions will be carried out by the Bureau of Community Environmental Management has not been clarified to date.

Authorizing legislation: 42 U.S.C. 241 and 246, Public Health Service Act, Sec. 301.

NATIONAL CENTER FOR HEALTH STATISTICS, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, PHS

The Center collects national data on mortality and morbidity on an annual basis. These data are compiled from death certificates, health interview surveys of households, and hospital discharge surveys. The data collected have formed one of the major sources of information with regard to mortality and morbidity related to illnesses, injuries, chronic conditions and other impairments, and other health topics.

The data of the Center relate directly to activities involved in the delivery of emergency medical care only to the extent that they delineate the numbers of persons requiring emergency care in terms of age distribution, mortality, disability, costs, and days of confinement in hospitals. This information, available annually and for geographic subdivisions of the country, is thus important in determining the regional, state, and local requirements for and distribution of ambulance services, communication systems, hospital emergency facilities, and health manpower personnel.

Currently the resources of the Center are not applied to data-gathering on causes or severity of accidental injury or emergency illness in specific etiologic categories. To acquire this information, special questionnaires, considerable lead time, and additional resources would be required.

Authorizing legislation: Public Health Service Act of 1 July 1944, as amended.

SOCIAL SECURITY ADMINISTRATION, DHEW

Medicare Title 18, regulation No. 5 (Federal Health Insurance for the Aged - 20 C.F.R. 405), subpart J, contains the condition that hospitals are required to meet if participating as providers of service in the Health Insurance for the Aged Program.

Under Section 405.1033 - Conditions of Participation - a hospital must have at least a procedure for taking care of the occasional emergency case it might be called on to handle. In hospitals that have organized emergency services or departments, participation requires standards with regard to organization and direction (the department or service must be well organized, directed by qualified personnel, and integrated with other departments of the hospital), facilities (facilities must be provided to ensure prompt diagnosis and emergency treatment), medical and nursing personnel (adequate medical and nursing personnel must be available at all times), and medical records (adequate medical records on every patient must be kept).

Medicaid Title 19 provides for the payment of health services to include outpatient and emergency care and ambulance services, as determined by the state agency (usually the state welfare or health department) responsible for administering the program. Federal funds are made available to the state agency on a formula-grant population basis. Assistance to states currently ranges from 50% to 80% federal funds.

Authorizing legislation: Social Security Administration Regulations No. 5, Title 20, Chapter III, Part 405. Social Security Act, Title 18 and 19, Public Law 89-97, 79 Stat. 301-313, 79 Stat. 331, as amended by Public Law 90-248.

VETERANS ADMINISTRATION: VETERANS EDUCATIONAL ASSISTANCE, DEPARTMENT OF VETERANS BENEFITS

Within the Veterans Administration, particularly its medical and nursing school affiliated hospitals, are unique teaching staffs, facilities, and other resources currently engaged in patient care, training and research programs fully capable of augmenting community programs for emergency service personnel.

In accord with the national reassessment and implementation of optimum medical services, the Veterans Administration has reviewed its current program with the aid of a national advisory group. A series of demonstration systems for veterans is planned at a number of VA hospitals to provide emergency services to be integrated with community or regional programs.

The educational assistance program of the Veterans Administration was created to make service in the armed forces more attractive by extending benefits of a higher education to qualified young persons who might not otherwise be able to afford such an education, to provide vocational readjustment and restore lost educational opportunities to those whose education or careers were interrupted by active duty, and to help persons attain the vocational and educational status that they might normally have aspired to and obtained had they not served their country.

An educational assistance allowance is paid to help the veteran meet, in part, the expenses of his tuition, fees, supplies, books, equipment, and other educational costs, and subsistence. Monthly benefits not to exceed 36 months range from $30 to $175 plus up to $10 for each dependent in excess of two, if a veteran is attending an approved educational institution. If

the veteran is following an approved program of apprenticeship or other on-the-job training, monthly benefits range from $20 to $100; benefits for other on-the-job training are limited to 2 years. Educational and vocational counseling are available to veterans eligible for educational assistance.

Eligibility requirements, assistance prerequisites, and application deadlines are prescribed by the Department of Veterans Benefits.

Authorizing legislation: 38 U.S.C. 34, Section 1651.

DEPARTMENT OF LABOR

Manpower resources of the Department of Labor are related to emergency medical services through grants provided to train unemployed and underemployed persons to return them to suitable employment or to upgrade their abilities. The Occupational Training Program provides for refresher courses for professional workers who would be unemployable unless their skills were upgraded. Payment is authorized for institutional (classroom) and on-the-job training to prepare workers for job opportunities that have been found through such programs as job market surveys and manpower research programs. Training in basic educational skills is provided when necessary. Institutional training is supported through payment of training allowances for up to 104 weeks, plus transportation and subsistence, cost of instruction, and instructors' salaries. In on-the-job training projects, trainees are paid by employers, but the federal government will subsidize instructor fees, instructional supplies, and rental of equipment or space.

Authorizing legislation: Manpower Development and Training Act, Title 2, Act of 1962, and Vocational Education Act of 1963.

DEVELOPMENT AREA TRAINING, ECONOMIC DEVELOPMENT ADMINISTRATION, DEPARTMENT OF COMMERCE

This program, funded by the Department of Commerce, is supplemental to the Manpower Development and Training Program of DHEW for the purpose of providing training for underemployed persons residing in redevelopment areas. There is no cost to trainees. Training is conducted both in schools and on the job in facilities of cooperating employers or organizations.

Authorizing legislation: Manpower Development and Training Act, Sec. 241.

SMALL BUSINESS ADMINISTRATION

The Small Business Administration's low-interest loans to purchase ambulances and equipment and to operate ambulance services on a "profit-making basis" are authorized by the Small Business Act of 1953, as amended; the Small Business Investment Act of 1968, as amended; and Title 4 of the Economic Opportunity Act, as amended. If credit is not otherwise available, the Small Business Administration can make loans in cooperation with banks or directly to the providers of service.

Authorizing legislation: Small Business Act as amended, Secs. 2 and 7, 15 U.S.C. 631 and 636.

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